

**A1 in Northumberland**  
Morpeth to Felton scheme

**Preliminary environmental  
information report**

**Appendix D**

Changes, Methodology

## CHANGES TO METHODOLOGY SINCE THE SCOPING REPORT

The following paragraphs set out the amended or further progressed methodology for specific elements of the environmental topics, in response to a specific PINS comment in the Scoping Opinion.

### MAJOR ACCIDENTS AND HAZARDS

As required by the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017, the ES will consider:

- i The potential vulnerability of the Scheme to risks of major accidents and / or disasters that are relevant to the Scheme (referred to as major events).
- i Any consequential significant environmental effects from those major events.

Major events can be natural or man-made and may include:

- i Severe weather e.g. floods; earthquakes, hurricanes, storms, drought, tsunamis, extremes of temperature – hot and cold
- i Transport accidents e.g. rail accidents, motorway pileups, plane crash
- i Industrial e.g. explosions, pollution, fire
- i Terrorism
- i Disease outbreaks
- i Electricity, gas, water supply or sewerage system failures

### Guidance

There is currently no published guidance on the assessment of major events within the context of EIA. However, the assessment will take account of existing good practice and guidance such as Defra (2011) 'Guidelines for Environmental Risk Assessment and Management'<sup>11</sup> and the Cabinet Office's 'National Risk Register of Civil Emergencies'<sup>12</sup>.

### Sensitive Receptors

The following receptors are likely to be considered, but could change as the EIA progresses:

- i Members of the public and local communities;
- i Infrastructure and the built environment;
- i The natural environment, including ecosystems, land and soil quality, air quality, surface and groundwater resources and landscape;
- i The historic environment, including archaeology and built heritage; and
- i The interaction between the factors above.

### Assessment Methodology

The assessment will consider the construction and operation (including maintenance) of the Scheme.

In order to define the sensitive receptors and the Scheme's vulnerability to a major event, baseline data will be collated from other relevant environmental topics within the ES, in particular Climate, People and Communities, Biodiversity, Health, Geology and Soils and

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<sup>11</sup> Defra (2011), Guidelines for Environmental Risk Assessment and Management: Green Leaves III, Cranfield University and Department for Environment, Food and Rural Affairs, November 2011.

<sup>12</sup> Cabinet Office, National Risk Register of Civil Emergencies, 2017 Edition.

Road Drainage and the Water Environment. Furthermore, a review of risk registers for the Scheme will be undertaken to inform the baseline. The baseline will comprise:

- i Features external to the Scheme that contribute a potential source of hazard to the Scheme (for example flood risk areas).
- i Sensitive environmental receptors at risk of significant effect.
- i Current (without the Scheme) major accident and disaster risks (for example flooding and traffic collision risks).

The methodology will include three main stages, as follows:

- i **Stage 1:** Develop a long list of all possible major events within a 5 km study area (based upon professional judgement). This list will draw upon a variety of sources, including the UK Government's Risk Register of Civil Emergencies. This stage will also include an initial review of potential sensitive receptors. This long list will be developed based upon professional judgement in consultation with Highways England, together with the site location, study area, nature of the Scheme, likelihood of occurrence, surrounding land uses and Scheme risk registers.
- i **Stage 2:** Undertake a screening exercise to review the long list of major events and to 'screen out' any major event not relevant to the Scheme. All major events that do not have a source<sup>13</sup>; pathway<sup>14</sup>; receptor<sup>15</sup> will be screened out. Those screened in will be taken forward for further assessment as a short list of major events.
- i **Stage 3:** Consider mitigation and design measures that could reduce the vulnerability of the Scheme to major events. Where mitigation is unable to remove the potential interaction between a major event and a specific environmental topic, the relevant topic specific ES chapter will identify the potential consequence for receptors covered by the topic, and give a qualitative evaluation of the significance of effect as a result of a major event.

The significance of effects will be based upon professional judgement and will consider:

- i Geographic extent of the effects.
- i Duration of the effects (effects which are permanent (i.e. irreversible) or long lasting will be considered significant).
- i Severity of the effects in terms of number, degree of harm to those affected and the response effort required (effects that trigger the mobilisation of substantial civil emergency response effort are likely to be considered significant).
- i Sensitivity of the identified receptors.
- i Effort required to restore the affected environment (effects requiring substantial clean-up or restoration efforts are likely to be considered significant).

All major events identified at Stage 2 will be included on the Scheme Risk Register, unless closed out through design.

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<sup>13</sup> the original cause of the hazard, which has the potential to cause harm

<sup>14</sup> the route by which the source can reach the receptor

<sup>15</sup> the element of the environment that could be adversely affected, if the source reaches it

## **ELECTRIC AND MAGNETIC FIELDS**

Public Health England, as part of the PINS Scoping Opinion, recommend the consideration of EMF in the ES.

Although the Scheme would not require the installation of any new electrical generating or transmitting equipment, it would comprise the diversion of a section of the Northern Power Grid 33kV low voltage overhead line, as described in **Section 2.3** of this PEIR. No significant EMF effects are therefore anticipated as a result of the Scheme. However, this will be confirmed through further consideration as part of the EIA.

There is currently no published guidance on the assessment of EMF in the context of EIA. In the UK there are also no statutory regulations to limit the exposure of people to power-frequency electric or magnetic fields. However, in 2004 the National Radiological Protection Board (NRPB) provided advice to the Government, recommending the adoption in the UK of guidelines published in 1998 by the International Commission on Non-Ionizing Radiation Protection (ICNIRP). The 1998 ICNIRP exposure guidelines set limits on induced current density in the central nervous system for the public which should not be exceeded. The industry Code of Practice on Compliance<sup>16</sup> provides guidance on when specific evidence of compliance with the ICNIRP exposure guidelines is required. This includes the Energy Networks Association's list of types of equipment where the design is such that it is not capable of exceeding the ICNIRP exposure guidelines.

Our proposed methodology is to review the Scheme components against the Code of Practice on Compliance criteria, together with other available relevant publications recommended by Public Health England. This will help to determine whether the Scheme has the potential to generate EMF above exposure guidelines. This approach will be further clarified through the EIA and consultation.

This qualitative assessment, if scoped in, will form part of the assessment of significant effects upon human health as a result of the Scheme, and reported in relevant environmental topics.

## **AIR QUALITY**

### **Construction**

The potential construction effects as a result of the Scheme were scoped out of further assessment in the Scoping Report. However, the PINS Scoping Opinion recommended it is to be scoped into the EIA.

The assessment of potential construction effects (including construction traffic and dust and any proposed traffic management measures) will be undertaken in accordance with DMRB HA207/07 methodology (para 3.45). The assessment will identify sensitive human and ecological receptors within 200 m of construction works. Beyond 200 m potential effects are unlikely to be significant. Mitigation measures to reduce dust emissions will be recommended and incorporated into the CEMP.

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<sup>16</sup> <https://www.gov.uk/government/publications/demonstrating-compliance-with-emf-public-exposure-guidelines-voluntary-code-of-practice>

## **Particulate Matter**

The assessment of particulate matter during the operation of the Scheme was scoped out of further assessment in the Scoping Report. However, the PINS Scoping Opinion recommended it is to be scoped into the EIA, together with consideration of PM<sub>2.5</sub>.

The assessment of PM<sub>10</sub> will be undertaken as set out in HA207/07 using emission factors from IAN 185/15.

The DMRB methodology (including IAN 185/15) does not recommend emission factors to assess PM<sub>2.5</sub>, therefore the potential effects of PM<sub>2.5</sub> cannot be directly modelled. The methodology will therefore consider potential PM<sub>2.5</sub> effects from the modelled PM<sub>10</sub> concentrations using the Local Air Quality Management Technical Guidance (2016) Box 7.7 and Annex B.

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